

RESIDENT/FELLOWSHIP Information: SAUSHEC Rheumatology Fellowship

Curriculum, 2008-2009

1. INTRODUCTION:

The Rheumatology curriculum was revised in 2008 with changes to reflect the new pediatric rheumatology and musculoskeletal ultrasound features of the program. As per recommendations of the May 2008 annual program review, the laboratory and podiatry rotations have been eliminated.

2. PURPOSE OF TRAINING: The purpose of this fellowship in Rheumatology is to provide an intensive clinical and research experience in a broad spectrum of inflammatory and musculoskeletal diseases, producing sub-specialists with expertise in the care of patients with rheumatic diseases. Physicians completing the fellowship will be able to become accomplished practitioner and consultant in the rheumatic diseases, and be eligible for and capable of passing the subspecialty examination in Rheumatology given by the American board of Internal Medicine, which has accredited this program. This program encourages the professionalism and scholarly attitudes and approaches of a competent sub specialist including those that are needed to maintain an understanding of current concepts in rheumatology as advances occur. This program will augment the readiness of the United States Air Force by providing physicians capable of treating rheumatic conditions, which have the potential to cause disability in all age groups.

3. OVERVIEW: This is a two-year fellowship, which was accredited by the ACGME with "continued accreditation" status as of 26 November 2006. There are two fellow positions at each year level. This program is part of the San Antonio Uniformed Services Health Education Consortium, with administrative offices and continuity of care clinics at Brook Army Medical Center, and shares teaching activities with the University of Texas at San Antonio.

a. **HEALTH CARE SETTING:** This fellowship offers exposure to an extremely broad spectrum of patients in a variety of health care settings. Patients are seen in a primary care setting in the outpatient clinic, in a referral mode as outpatients, and in a consultative capacity on the medicine, pediatric, surgical, psychiatric wards, and intensive care units. For further information, see "facilities and resources" below.

b. **SELECTION PROCEDURE:** Applicants for this program must be board eligible or certified in internal medicine by the time their fellowship training will begin. Trainees will be selected from a pool of applicants applying through the Graduate Medical Education Committee, one voting member of which is the rheumatology program director. This pool includes internists currently practicing on active duty and internal medicine residents completing residency both on active and HPSP deferred status.

c. ROTATIONS:

First Year

- Introduction to Rheumatology- 2 Blocks /8 weeks
- Rheumatology inpatient consultation service – 5-6 blocks/20-24 weeks
- Orthopedics - 1-block/4 weeks
- Physical medicine and rehabilitation - 1 block /4 weeks

- Bone radiology - 2 weeks
- WHMC – 1-2 block/4-8 weeks
- Research – 4 weeks
- Leave – 4 weeks

Second Year

- Senior Fellow BAMC Inpatient – 1 Block/4 weeks
- Research and elective rotations - 11 months (this time includes responsibilities in the Rheumatology clinics and conferences as below)
- Rheumatology inpatient consultation service – 4-8 weeks (WHMC)

4. Medical Knowledge: Definition: Medical knowledge refers to the understanding the established and evolving biomedical, clinical, and cognate science, and to application of this knowledge to patient care

LEARNING OBJECTIVES: The Rheumatology fellow will be expected to develop a systematic approach to the diagnosis and treatment of patients with common and unusual rheumatic disorders. Understanding of normal and pathogenic process of the immune system forms the basis of reliable diagnosis and the development and use of an increasingly sophisticated range of treatments. Rheumatology fellows must have practical understanding of the modalities and approaches used by other specialists and allied health professional in order to manage the care of their patients effectively. Pertinent skills will be acquired in the subspecialties of neurology, physical medicine, and orthopedics to facilitate global management of patients with rheumatic diseases. The fellow should be able to design, execute, and report the results of a clinical or basic science research project and to critically evaluate the investigative efforts of others

a. The trainee will by the end of training be competent in the diagnosis and management of the following **clinical sciences** and conditions as set forth by the American College of Rheumatology:

- Rheumatic disease: Rheumatoid arthritis, lupus erythematosus (systemic, discoid, and drug related), Scleroderma (localized syndromes, systemic sclerosis, CREST variant, chemical/drug related), eosinophilic fasciitis, Polymyositis, Dermatomyositis, Sjogren's syndrome, overlap syndromes, mixed connective tissue disease, polymyalgia rheumatica, relapsing polychondritis, erythema nodosum, adult onset Still's disease, primary antiphospholipid syndrome, undifferentiated connective tissue disease.

--Seronegative Spondyloarthropathies: ankylosing spondylitis, Reactive arthritis, psoriatic arthritis, inflammatory bowel disease-associated arthritis, arthritis associated with acne and other skin diseases, SAPHO syndrome, and undifferentiated spondyloarthropathies.

-- Vasculitis: Temporal arteritis, Takayasu arteritis, polyarteritis nodosa and systemic necrotizing vasculitis overlaps, allergic granulomatosis of Churgg-Strauss, Wegener's granulomatosis and other ANCA-associated diseases, Behcets disease, hypersensitivity and small vessel angiitis, cryoglobulinemia, Congan's

-- Metabolic, endocrine, and hematological disease associated with rheumatic disorders

- Crystal induced synovitis: monosodium urate monohydrate (gout), calcium dihydrate deposition disease, basic calcium phosphate (hydroxyapatite), calcium oxalate

- Endocrine associated diseases: rheumatic syndrome associated with diabetes mellitus, acromegaly, hyperparathyroidism, hypoparathyroidism, hyperthyroidism, and

- hypothyroidism, Cushing's
- Hematologic associated diseases: rheumatic syndrome associated with hemophilia, hemoglobinopathies, angioimmunoblastic lymphadenopathy, hypercoagulable states
- Bone and cartilage disorders
 - Osteoarthritis primary and secondary
 - Metabolic bone disease: osteoporosis, osteomalacia, bone disease related to renal disease, Paget's disease of bone
 - Avascular necrosis of bone: idiopathic, secondary, osteochondritis dissecans
 - Other: transient osteoporosis, hypertrophic osteoarthropathy, diffuse idiopathic skeletal hyperostosis, insufficiency fractures
- Hereditary, congenital, and inborn errors of metabolism associated rheumatic syndromes
 - Disorders of connective tissue: Marfan's, osteogenesis imperfecta, Ehlers-Danlos syndrome, pseudoxanthoma elasticum, hypermobility syndrome
 - Mucopolysaccharidoses
 - Osteochondrodysplasias: multiple epiphyseal dysplasia, spondyloepiphyseal dysplasia
 - Inborn errors of metabolism affecting connective tissue: homocystinuria, ochronosis
 - Storage disorders: Gaucher's, Fabry's, Farber's, lipogranulomatosis
 - Immunodeficiency: IgA deficiency, complement components deficiency
 - Others: hemochromatosis, hyperlipidemic arthropathy, myositis ossificans progressiva, Wilson's disease
- Nonarticular and regional musculoskeletal disorders
 - Fibromyalgia
 - Psychogenic rheumatism
 - Axial syndromes: low back pain, spinal stenosis, intervertebral disc disease and radiculopathies, cervical pain syndromes, coccydynia, osteitis condensans ilii, osteitis pubis, spondylolisthesis/spondylolysis, discitis
 - Regional musculoskeletal illnesses: in addition to bursitis, tendonitis, or enthesitis occurring around each joint, the fellow should be familiar with other disorders occurring at each specific joint site (e.g., shoulder-rotator cuff tear, adhesive capsulitis, impingement syndrome; wrist ganglions; trigger fingers and Dupuytren's contractures; knee synovial plicae, cysts; hallux rigidus, heel pain, and metatarsalgia; TMJ syndromes; osteochondritis
 - Biomechanical/anatomic abnormalities associated with regional pain syndromes: scoliosis and kyphosis, leg length discrepancy, foot deformities
 - Overuse rheumatic syndromes: occupational, sports, recreational, performing artists
 - Sports medicine: injuries, strains, sprains, nutrition, female athlete, and medication issues
 - Entrapment neuropathies: thoracic outlet syndrome, upper extremity entrapments, and lower extremity entrapments

- Other: reflex sympathetic dystrophy (regional complex pain), erythromelalgia
- Neoplasms and tumor-like lesions
 - Benign: Joints: loose bodies, fatty and vascular lesions, synovial osteochondromatosis, pigmented villonodular synovitis, ganglions; Tendon sheaths: fibroma, giant cell tumor, nodular tenosynovitis; Bone: osteoid osteoma, others
 - Malignant: Primary: synovial sarcoma, others; Secondary: leukemia, myeloma, metastatic malignant tumors; Malignancy-associated rheumatic syndromes: carcinomatous polyarthritis, palmoplantar fasciitis, Sweet's syndrome
- Muscle diseases
 - inflammatory: polymyositis, dermatomyositis, inclusion body myositis
 - Metabolic: Primary; glycogen storage diseases, lipid metabolic disorders, myoadenylate deaminase deficiency, mitochondrial myopathies; Secondary; nutritional, toxic, endocrine disorders, electrolyte disorders, drug-induced
 - Muscular dystrophies
 - Myasthenia gravis
- Miscellaneous rheumatic disorders: amyloidosis (primary, secondary, hereditary), Raynaud's disease, Charcot joint, remitting seronegative symmetrical synovitis with pitting edema (RS3PE), multicentric reticulohistiocytosis, Plant thorn synovitis, Intermittent arthritides: palindromic rheumatism, intermittent hydrarthrosis, Arthritic and rheumatic syndromes associated with: sarcoidosis, scurvy, pancreatic disease, chronic active hepatitis, primary biliary cirrhosis, drugs, and environmental agents, Rheumatic disease in the geriatric population, Rheumatic disease in the pregnant patient, Rheumatic syndromes in dialysis patients, Non-surgical exercise or related sports injuries, Systemic diseases with rheumatic manifestations
- Infection of joints and soft tissues
 - Infectious arthritides: bacterial (nongonococcal and gonococcal), mycobacterial spirochetal (syphilis, Lyme), viral (HIV, hepatitis B, parvovirus, other), fungal, parasitic
 - Whipple disease
 - Reactive arthritides: acute rheumatic fever, arthritis associated with subacute bacterial endocarditis, intestinal bypass arthritis, post dysenteric arthritides, post immunization arthritis, other
- b. The trainee will be familiar with pediatric rheumatologic diseases:
 - Rheumatic diseases that occur primarily in children. Know how to diagnose and how they differ from the same, or similar, disease in adults.
 - Systemic juvenile rheumatoid arthritis (Still's Disease)
 - Pauciarticular juvenile rheumatoid arthritis
 - Polyarticular juvenile rheumatoid arthritis
 - Juvenile spondyloarthropathy
 - Juvenile Dermatomyositis
 - Kawasaki Disease
 - Henoch-Schonlein Purpura
 - Acute rheumatic fever
 - Neonatal lupus syndrome
 - CINCA (NOMID)
 - PFAPA syndrome (periodic fever, aphthous stomatitis, pharyngitis, and adenitis)

-- Know the major sequelae or life-threatening complications of rheumatic diseases that occur

primarily in children:

- Systemic onset JRA
- Macrophage activation syndrome & cardiac tamponade
- Pauciarticular JRA
- Chronic uveitis
- Juvenile Dermatomyositis, GI vasculitis & calcinosis
- Kawasaki Disease
- Aneurysms of coronary and other arteries
- Henoch-Schonlein Purpura, GI – intussusception, intestinal infarction & Renal – chronic nephritis

- Neonatal lupus syndrome, heart block & thrombocytopenia

-- Know the appropriate treatments of the above childhood rheumatic disorders and complications.

-- Recognize non-rheumatic disorders in children that can mimic rheumatic diseases:

- Bone dysplasias
- Neoplasms: Leukemia, lymphoma, and solid tumors
- Post-infectious syndromes : Transient tenosynovitis of the hip, Other post-infectious arthritis and arthralgias, Post-viral myositis

-- Orthopedic conditions: Legg-Calve-Perthes Disease and other avascular, necrosis syndromes, Slipped capital femoral epiphyses, Spondylolysis and spondylolisthesis, Patellofemoral syndrome

-- Non-rheumatic pain: Benign limb pains of childhood (growing pains”), Benign hypermobility syndrome, and Pain amplification syndromes including reflex sympathetic dystrophy

-- Know aspects of rheumatic disease and treatments specific to children

- Disease effects on growth: Accelerated or decelerated growth of affected limbs, Short stature and failure to thrive
- Child-specific side effects of chronic corticosteroid treatment: Growth retardation, Delay of puberty
- Drugs: FDA approved drugs for childhood rheumatic disease, Drug metabolism and dosing different from adult
- Physical and occupational therapy: Exercises , Splinting

-- Psychosocial and developmental issues: Peer and sibling interaction, Family adjustment,

School accommodations for disability, School and recreational activities, Transition to adulthood.

c. The trainee will acquire skills to use or refer patients for the following therapeutic modalities and strategies in the practice of rheumatology:

-- Pharmacology: for each medication, understand the dosing, pharmacokinetics, metabolism, and mechanisms of action, side effects, drug interactions, compliance issues, costs, and use in patients including fertile, lactating, and pregnant women.

- Nonsteroidal anti-inflammatory drugs
 - Glucocorticoids: topical, intra-articular, systemic
- Cytotoxic drugs: azathioprine, cyclophosphamide, chlorambucil
- Antirheumatic drugs: antimalarials, sulfasalazine, gold compounds, methotrexate, D-Penicillamine
- Immunomodulators: cyclosporine, biologic agents
- Hypouricemic drugs: allopurinol, sulfinpyrazone, probenecid

- Antibiotic therapy for septic joints
- Narcotic and non-narcotic analgesics
- Biologic agents, to include but not limited to etanercept, adalimumab, abatacept, and rituximab
- Others: apheresis, Iv Immunoglobulins, Thalidomide
- Rehabilitation and disability issues: Methods of rehabilitation: for each method, understand principles, mechanism of action, indications, precautions and contraindications, potential side effects, and costs.
 - Exercise: range of motion, strengthening, conditioning, and stretching
 - Rest and splinting
 - Modalities and hydrotherapy: ultrasound, iontophoresis, spa therapy
 - Joint protection and energy conservation techniques
 - Adaptive equipment and assistive devices
 - Job site/home evaluation and adaptation
 - Footwear and orthotics
 - Others: acupuncture, TENS unit, pain clinics, traction
 - Nutritional issues
- Demonstrate understanding of specific rehabilitative techniques/modalities and what modification of these techniques are needed depending on the patient's disease (e.g back, shoulder, etc) and other related issues
- Psychosocial aspects of disability: understand the impact that the following factors have on the overall therapy of a patients with rheumatic disease and demonstration knowledge of what can be done to assist a patient in these areas.
 - Psychologic and emotional factors including sexuality
 - Economic and vocational issues: vocational rehabilitation, costs of therapy and monitoring
 - Disability determination: impairment vs disability, evaluation and measurement, social security disability, workmen's compensation, other
 - Compliance issues
- Surgical management
 - For each procedure, the fellow should possess a working knowledge of indications, preoperative evaluation and medication adjustments, contraindications, complications, postoperative management, and expected outcome.
 - Bone biopsy
 - Arthroscopy
 - Synovectomy of tendons and joints
 - Entrapment neuropathy release
 - Osteotomies: hip, knee
 - Arthrodesis: wrist, other
 - Spine surgery: radiculopathy, stenosis, and instability
 - Reconstructive surgery of hand and foot
 - Infected joint: arthroscopy vs. arthrotomy
 - Ankylosing spondylitis patient
 - Pediatric rheumatic disease patient
 - Prevention and treatment of deep venous thrombosis

- Complementary and alternative medical practices: diet, nutritional supplements, antimicrobials, acupuncture, topicals, homeopathic remedies, venoms, others
 - examination of patients to include a specific examination of structure and function of all joints, both axial and peripheral, as well as periarticular structure and muscle units.
 - construction of differential diagnosis for complexes of symptoms and signs related to rheumatologic diseases.
- diagnostic aspiration and analysis by light and polarized light microscopy of synovial fluid from diarthrodial joints, bursae, and tenosynovial structures.
- therapeutic joint, bursa, tendon, trigger point, and carpal tunnel injection
- d. The trainee will acquire skill in the indications for and interpretation of results of diagnostic tests important to rheumatology:
 - Laboratory tests: for each test, understand the biologic rationale, methods for performing, and utility/limitations of specific laboratory tests including but limited to:
 - Erythrocyte sedimentation rate, C-reactive protein, and acute phase reactants
 - Rheumatoid factors, cryoglobulins, and circulating immune complexes
 - Anti- cyclic citrullinated peptide antibodies; and LE cell preparation
 - Antiribosomal P, anti-topoisomerase 1, and anti-synthase antibodies including anti Jo-1
 - Anti-neutrophil cytoplasmic antibodies including specificities for neutrophil granuleconstituents {anti-PR3, anti-myeloperoxidase}
 - Antiphospholipid antibodies including RPR, lupus anticoagulant, anticardiolipin and glycoprotein I antibodies
 - Antibodies to formed blood elements including direct and indirect Coombs testing, anti-platelet antibodies, anti-granulocyte antibodies
 - Assays for complement activity {CH50} and components of the complement cascade
 - Serum immunoglobulin levels, Serum protein electrophoresis and immunofixation electrophoresis
 - HLA typing
 - ASO and other streptococcal antibody tests
 - Serum and urine measurements for uric acid
 - Iron studies including ferritin
 - Flow cytometry studies for analysis of lymphocyte subsets and function,
 - Diagnostic imaging techniques: understand the basic underlying principles and technical considerations in the use of plain radiographs, computed tomography, magnetic resonance imaging, ultrasonography and radionuclide scanning of bones, joints, and periarticular and vascular structures. Bone densitometry.
 - Synovial fluid analysis: cell count and differential, crystal identification, viscosity, protein, glucose, and other special stains/analyses
 - Test-performance characteristic: principles of sensitivity, specificity, and predictive value

- Biopsies of tissues relevant to the diagnosis of rheumatic diseases (kidney, muscle, blood vessel, etc.)
- EMG and nerve conduction velocities
- Nailfold capillary microscopy

e. The trainee will acquire a fund of knowledge in the following areas of basic science sufficient to

practice clinical rheumatology and interpret current literature:

- Anatomy and biology of musculoskeletal tissue: for each tissue, understand the embryology, development, biochemistry and metabolism, physiology, structure, function and classification.
 - Joints and ligaments: diarthrodial joints, intervertebral discs, synovium, cartilage
 - Connective tissue cells and components: fibroblast, collagens, proteoglycans, elastin, matrix glycoprotein
 - Bone: development, structure, cellular basis of turnover and remodeling, humoral and cytokine regulation
 - Muscle, tendons and blood vessels
- Basic immunology
 - Anatomy and cellular elements of the immune system
 - Lymphoid organs: gross and microscopic anatomy and function
 - Organization of the immune system: innate and adaptive immune systems
 - Specific cells: for each cell type, understand the ontogeny, structure, phenotype, function, and activation markers/receptors
 - Lymphocytes: T cells and B cells (naïve, memory, activated)
 - Antigen presenting cells: monocytes, macrophages, and dendritic cells
 - Natural killer cells, neutrophils, eosinophils
 - Other cells: mast cells, endothelial cells, platelets and fibroblasts
- Immune and inflammatory mechanisms:
 - Receptor/ligand interaction, adhesion molecules, complement receptors, Fc receptors, toll receptors, activating and inhibiting receptors, signal transduction
 - T cell receptors: structure, function, antigen binding, signaling, genetic basis
 - B cell receptors/immunoglobulins: structure, function, antigen binding, signaling, genetic basis, effector function
 - Antigens: types, structure, processing, presentation, and elimination
 - Superantigens: type, site of binding, and effect on immune system
 - Major histocompatibility complex: structure, function, and regulation
 - Complement/Kinin systems: structure, function, and regulation
 - Acute phase reactant and enzymatic defenses
- Cellular interaction and immunomodulation
 - Cellular activation and regulation: for each cell type, understand mechanism of activation and suppression of function

- Cytokines: for each cytokine, understand the origin, structure, effects, site of action, metabolism, regulation, and gene activation
- Inflammatory mediators: for each mediator, understand the origin, structure, effect, site of action, metabolism, and regulation
- Immune responses
 - Antibody-mediated: opsonization, complement fixation, and antibody dependent cell cytotoxicity
 - Cell mediated: cells and effector mechanism in cellular cytotoxicity and granuloma formation
 - IgE mediated acute and late phase reactions
 - Mucosal immunity: interactions between the gut, bronchial associated lymphoid tissue and secretory IgA
 - Innate immune responses: natural killer cells, and pattern recognition
 - Pathologic immune responses: Immune complex mediated, graft vs. host response, abnormal apoptosis
- Immunoregulation
 - Tolerance: clonal selection, deletion and anergy
 - Cell to cell interactions: help and suppression. Understand the collaboration among cells for control of the immune response
 - Idiotypic network: inhibition and stimulation
- Purine and uric acid metabolism
 - Purine: biochemistry, synthesis, and regulation
 - Uric acid: origin, elimination, and physicochemical properties
 - Crystals: factors affecting formation, induction of inflammation
 - Purine pathway enzyme deficiencies and immunodeficiency
- Biomechanics of bones, joints, and muscles: understand the principles of kinesiology of peripheral/axial joints and gait and how alterations in biomechanics contribute to musculoskeletal disorders
- Neurobiology of pain
- pathologic aspects of rheumatic diseases
- nonarticular manifestations of joint disease, including emotional factors that influence or result from rheumatic diseases.
- the scientific basis of the methodology, indications, and interpretations of laboratory tests and imaging procedures used in diagnosis and follow-up of patients with rheumatic diseases indications for and interpretation of electromyograms, nerve conduction studies and muscle/nerve biopsy
- pharmacology, pharmacokinetics, drug metabolism, drug side effects, drug interactions, and costs of therapy or agents used in the therapy of rheumatologic diseases
- principles of rehabilitation for patients with rheumatic disease including physical therapy and occupational therapy
- indications for surgical and orthopedic consultation in acute and chronic rheumatic

- diseases
 - basic principles of decision analysis relating to diagnostic tests to define illness and recommend therapy
 - principles of clinical epidemiology and health services research, including biostatistics, medical information systems, information sciences, critical literature review and clinical trials and experimental protocol research design.
 - rheumatic problems in the geriatric population
 - ethical and socio-economic issues relating to the practice of Rheumatology
- f. Research: By the end of the first year of training the fellow will have, under the direction of a chosen mentor, conceived and submitted for IRB approval an original basic science or clinical research proposal pertinent to Rheumatology or Immunobiology. Alternatively, the fellow may assume a primary role on a research project already IRB approved. During the second year of training the fellow will perform this research. A manuscript or abstract related to this research must be submitted to a journal or a national meeting prior to graduation unless the fellow and mentor agree that the results do not clearly merit publication yet. In such case the fellow must prepare a manuscript to be graded by the PD and presented for as graduation requirement for SAUSHEC. During this process the fellow is expected to develop skills in the following Research Principles:
- Principles of epidemiology and health services research
 - Design of experimental protocols, clinical trials, and outcomes research
 - Laboratory techniques
 - Serologic: ELISA, RIA, RID, nephelometry, immunoblots, protein electrophoresis, circulating immune complex assays.
 - Cellular: lymphocyte proliferation, flow cytometry.
 - Histochemistry and immunofluorescence of biopsied tissues.
 - Molecular: Northern, Southern, Western, polymerase chain reaction, genetic mapping techniques, gene sequencing
 - Hybridoma and monoclonal antibody production
 - Transgenic and gene knock-out animals
 - Principles of gene therapy
 - Data analysis, biostatistics, meta-analysis and medical informatics
 - Health status, disease activity, accumulated damage, functional, and quality of life measurements/assessments
 - Methods of cost effectiveness analysis
 - Bioethics of basic research and clinical trials
 - Critical literature review literature research, study design, technical aspects specific to the research project, data interpretation, and responsible use of informed consent.

Methods for Acquisition

The fund of knowledge obtained through this curriculum should serve as the foundation for understanding the pathogenesis, diagnosis, and treatment of the rheumatic diseases. The methods and resources for acquiring the body of medical knowledge include, but are not limited to:

- Structured didactic programs (rheumatology review series, rheumatology rounds)
- Recommended textbooks

- Journal articles (J club)
- Web-based research and study
- Laboratory experience
- Rotation experiences (Orthopedics, Physical Medicine and Rehabilitation, Radiology, Podiatry, Lab, Peds rheumatology clinic)
- Regional and national meetings and seminars

Performance Markers

Basic Science: Demonstrates adequate understanding of anatomy, basic immunology, cell biology and metabolism pertaining to the rheumatic diseases in both didactic and clinical settings.

Clinical Science: Demonstrates adequate understanding of pathogenesis, epidemiology, clinical expression, treatments and prognosis of the full range of rheumatic and musculoskeletal disease in both didactic and clinical settings.

Diagnostic Testing: Displays an understanding of the physical and biologic basis of the range of diagnostic testing in rheumatology and the clinical test characteristics of these procedures.

Research Principles: Demonstrates an understanding of the essential components of quality experimental design, data analysis, interpretation of results, and the importance of adherence to ethical standards of experimentation. Exhibits familiarity with the common experimental approaches used in laboratory and epidemiology research and with the standard methods of clinical trial design.

Evaluation Tools

- Global evaluation by faculty
- Evaluations of presentations in conferences and journal clubs
- Cognitive testing
- Mentor evaluation of trainee's research performance, CEX

5. Patient Care: Definition: Patient Care that is compassionate, appropriate, and effective for the treatment of disease and the promotion of health.

Essential Components

The essence of being a rheumatologist is the ability to use data derived about a patient (history, physical examination, laboratory and imaging studies) along with medical knowledge to orderly synthesize a differential diagnosis, plan of further evaluation and comprehensive management for the patient with a rheumatologic problem. This may broadly be categorized under four components:

Information Gathering

- Obtaining the history
- Performing a careful physical examination
- Obtaining further testing: laboratory, imaging, other

Synthesis of Treatment Plan

- Medical decision making accounting for patient preferences and circumstances

Implementation of treatment

- Prescribing medications and rehabilitation
- Patient education and counseling
- Preventive medicine and proactive care
- Therapeutic aspiration and injection

Reassessment and patient follow up

Methods for Acquisition

Learning the essentials of patient care is primarily acquired by caring for patients in the outpatient clinic as well as the inpatient (hospitalized) settings. These supervised experiences are the focus of clinical training where the trainee observes skilled clinician role-models, and participates with the patient in the management of their rheumatologic problems. Other situations in which facets of patient care are taught and learned include:

- Didactic lectures
- Meetings
- Interactive group discussions
- Case scenarios
- Reading/self-directed learning utilizing texts, medical literature, reading lists
- Portfolios, including reflective learning at feedback sessions
- Clinic performance

Performance Markers

The fellow should be able to:

- Understand principles and demonstrate competency in obtaining a clinical history, relevant review of systems, and assessing functional status of patients with rheumatic disease symptoms.
- Understand principles and demonstrate competency in performing and interpreting the examination of the structure and function of all axial and peripheral joints, periarticular structures, peripheral nerves and muscles. Additionally, the fellow should be able to identify extraarticular findings that are associated with specific rheumatic diseases.
- Demonstrate understanding and competency in the assessment and interpretation of:
 - o Radiographs of normal and diseased joints, bones, periarticular structures and prosthetic joints.
 - o Bone densitometry

Using the basic principles of decision analysis, demonstrate understanding and competency in the indications for and the interpretation of results from laboratory tests and procedures to establish a diagnosis of a rheumatologic disease including:

Arthrography, ultrasonography, computed tomography, magnetic resonance imaging of joints, bones and periarticular structures

Radionuclide scans of bones and joints

Arteriograms (conventional and MRI/MRA) for patients with suspected or confirmed vasculitis

Computed tomography of lungs and paranasal sinuses

Magnetic resonance imaging of the central nervous system (brain and spinal cord)

Electromyograms and nervous system (brain and spinal cord)

Biopsy specimens including histochemistry and immunofluorescence of tissue relevant to diagnosis of rheumatic diseases: skin, synovium, muscle, nerve, bone

Specific laboratory tests (including but not limited to) erythrocyte sedimentation rate, C-reactive protein, other acute phase response proteins (e.g. ferritin),

rheumatoid factor, anti-cyclical citrillunated peptides, antinuclear antibodies, anti dsDNA, anti SSA (anti-Ro), anti SSB (anti-La), anti U1RNP, anti Sm, antitopoisomerase I (Sc1-70), anti-Jo-1, anti PM-Scl, antihistone antibodies, antineutrophil cytoplasmic antibodies (including anti-myeloperoxidase and anit-proteinase-3), cryoglobulins, complement component levels, CH50, serum protein electrophoresis, serum immunoglobulin levels, LE preparation, RPR, lupus anticoagulant assays, anticardiolipin antibodies, HLA typing (e.g. HLA-B27), ASO and other streptococcal antibody tests, Lyme serologies, serum and urine uric acid levels, circulating immune complexes, lymphocyte subset and function data, anticelular antibodies (e.g. Coombs" test, neutrophil antibodies and anti-platelet antibodies)

Arthroscopy

Schirmer's and rose Bengal tests; parotid scans and salivary flow studies

- Understand the indications for and demonstrate competence in arthrocentesis. The fellow should understand the anatomy, precautions (including OSHA requirements) and potential sequalee of arthrocentesis and demonstrate competency in obtaining synovial fluid from diarthrodial joints, bursae and tenosynovial structures with adequate informed consent.
- Understand the principles and interpretation of results of synovial fluid analysis and become proficient in the examination and interpretation of synovial fluid under conventional and polarized light microscopy from patients with the variety of rheumatic diseases.
- Demonstrate the ability to construct a differential diagnosis in patients presenting with signs and symptoms related to rheumatologic diseases and to outline further testing necessary to establish the correct diagnosis.
- Demonstrate the ability to identify physical impairment; relate the impairment to the observed functional deficits; prescribe appropriate rehabilitation (physical therapy, occupational therapy) to achieve goals to improve the defined impairment
- Understand indications for surgical and orthopedic consultation in acute and chronic rheumatic diseases.
- Demonstrate a working knowledge of clinical pharmacology: for each medication, understand the dosing, pharmacokinetics, metabolism, mechanisms of action, side effects, drug interactions, compliance issues, costs, and use in patients including fertile, lactating, and pregnant women.
 - o Nonsteroidal anti-inflammatory drugs and adequate gastroprotection
 - o Glucocorticoids: topical, intraarticular, systemic
 - o Disease modifying antirheumatic drugs:
 - o historical agents such as gold compounds and penicillamine
 - o oral agents: methotrexate, antimalarials, sulfasalazine, leflunomide, tetracycline, auranofin
 - o parental biological response modifiers including inhibitors of TNF, IL 1 and other cytokines and immune based therapies under development such as tocilizumab
 - o Cytotoxic drugs: azathioprine, cyclophosphamide, chlorambucil, mycophenolate mofetil
 - o Immunomodulators: cyclosporine
 - o Hypouricemic drugs: allopurinol, sulfipyrazone, probenecid
 - o Antibiotic therapy for septic arthritis, Lyme disease
 - o Experimental therapies: plasmapheresis, intravenous immunoglobulin, myeloablative therapy and immune reconstitution including stem cell transplantation

- Pre- and Post-operative Management of the Surgical Patient:
 - Understand indications for surgical and orthopedic consultation in acute and chronic rheumatic diseases
 - Understand perioperative evaluation, appropriate referral and medication adjustments.
 - Rehabilitation of the rheumatic disease patient after a surgical or orthopedic procedure, as well as aspects of postoperative medical management pertaining to the rheumatologic condition.
 - Understand changes required in patient management should the rheumatology patient become pregnant; this should include pre-pregnancy counseling about ramifications of becoming pregnant on the disease process, the use of medications, before and during pregnancy and in the postpartum period.
 - Understand pain assessment and pain management:
 - Methods of pain assessment including visual analog scale scores, pain questionnaires
 - Non-pharmacological modalities of pain management including exercise, cognitive behavior therapy
 - Pharmacological therapy including
 - Immunosuppressive and anti-inflammatory management of underlying rheumatic disorder. Analgesic agents including acetaminophen, nonsteroidal anti-inflammatory agents and narcotic analgesics.
 - Antidepressants. Investigational uses of approved drugs such as gabapentin
 - Understand complementary and unconventional medical practices: diet, nutritional supplements, antimicrobials, acupuncture, topical therapeutic agents, homeopathic remedies, venoms, and others

- Understand the indications for and costs of ordering laboratory tests, procedures to establish a diagnosis of rheumatologic disease and of different therapies used in the management of these diseases.
- Demonstrate the ability to construct and implement an appropriate treatment plan for the care of a patient with a rheumatologic problem integrating the prescribing of medications (oral, injectable or infused), counseling, rehabilitative medicine, and, when necessary, surgical or other consultation. The fellow should be able to explain the rationale and the risks/benefits for the treatment plan.

- Demonstrate the ability to reassess for the patient over time and alter the treatment plan accordingly.

Evaluation Tools

- Global reviews
- Chart reviews
- Mini CEX
- 360 evaluations
- Portfolios 360 evaluations

6. Practice-based Learning and Improvement: Definition : Practice-based learning and improvement involves the investigation of care provided to both individual patients as well as to groups of patients in a given practice, the appraisal and assimilation of scientific evidence relevant to clinical problems encountered, evaluations of the care provided in the context of this evidence, and effecting improvements in patient care based upon these evaluations.

Essential Components

- **Self-evaluation of performance:** As part of ongoing self-assessment activities, rheumatology trainees should continuously evaluate their own learning needs and monitor their practice behaviors to ascertain whether their clinical decisions and therapeutic interventions are adhering to accepted standards of care.
- **Reflective learning:** Rheumatology trainees should access appropriate information systems and sources to assess the accuracy of diagnoses, improve understanding of underlying pathology, and appropriateness of therapeutic interventions for patients they encounter.
- **Incorporation of feedback into improvement of clinical activity:** Rheumatology trainees should appropriately interpret results of clinical outcome studies, practice data, and faculty/peer evaluations and apply the results to patient care and practice behavior.
- **Participation in process improvement activity:** Fellows will either design their own process improvement activity related to either education or patient care, or they will participate in a project of this nature by helping with design and/or execution.

Methods for Acquisition

- Participation in mentored continuity clinics and consultation services
- Accessing and reading medical literature
- Faculty-facilitated group discussions and tutorials
- Presentations to peers and lay audiences
- Participation in process improvement initiatives

Performance Markers

- **Self-evaluation of performance:**

- A. Search, retrieve, and interpret peer-reviewed medical literature relevant to rheumatic diseases
- B. Apply study and case report conclusions to the care of individual patients
- **Reflective learning:**
Fellows will review their training portfolios at least quarterly before meeting for feedback with the program director. They will use this review to self-formulate educational goals, and discuss this with the PD.
- **Incorporation of feedback into improvement of clinical activity**
Utilize patient information systems to assess measurable clinical practices and outcomes.
- Documented participation in process improvement: The fellow's activity will be documented in the learning portfolio and reviewed with the program director at semi-annual review.

Evaluation Tools

- Review of maintained portfolio based upon patient encounters and identified learning needs
- Trainee Quality Assurance/Improvement reports on their own practice
- Faculty assessments of trainee presentation {portfolio-based presentation, journal article reviews} to peers

Faculty evaluations of clinical performance with regard to demonstration of reflective learning in clinical venues

7. Systems-based Practice Competency: Definition: Systems-based practice reflects an understanding of and responsiveness of the larger context and systems of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.

Essential Components

- **Partners in health care delivery:** the various providers and resources available to deliver optimal care

The principal partners in delivering health care to rheumatic patients include providers such as nurses, physiatrists, orthopedists and allied health professionals available within the local healthcare system. Partners also include outside volunteer agencies, both locally and nationally, such as the American College of Rheumatology, the Arthritis Foundation, the disease-specific foundations (Lupus, Scleroderma, Ankylosing Spondylitis, etc), the National Institute of Arthritis, Musculoskeletal and Skin Disease (NIAMS) and pharmaceutical companies that have specific patient-related initiatives. Other agencies that impact on the practice of rheumatology include the American Medical Association (AMA), the Food and Drug Administration (FDA) and the Center of Medicare and Medicaid Services (CMS).

- **Advocacy for the patient:** the importance, opportunities and limits of patient advocacy

The advocacy might consist of assisting patients with applications for Medicaid disability, completing preauthorization documents for the use of certain medications and appealing to HMOs with respect to denial of certain treatments, benefits and claims.

- **Cost-effective health care:** the principles of cost allocation and resource management within the external (state, national) and local systems

This includes a knowledge of the availability of certain drugs (and unavailability of others) on the trainee's hospital formulary, the mechanisms by which compensation (by CMS and other carriers) is dependent upon the delivery of various levels of service to patients and the methods in place for Quality Review of inpatient and outpatient practice patterns. The utilization of evidence-based cost-conscious strategies for the diagnosis and treatment of patients with rheumatic diseases is paramount.

- **Systems:** a concept of "system thinking" in health care delivery

This includes an understanding of the limitations and opportunities of various types of rheumatology practices and delivery systems, practice management strategies, managed care and health insurance issues. It also comprises an ongoing analysis of the strengths and weakness of the local academic system, in both the inpatient and outpatient settings, practice management strategies, managed care and health insurance issues. It also comprises an ongoing analysis of the strengths and weakness of the local academic system, in both the inpatient and outpatient settings, and its impact on the health care delivery to rheumatic patients. In particular, efforts should be made to identify potentially correctible systematic weakness and medical errors due to systems failure and to develop strategies to rectify the problems (i.e. Quality Improvement projects).

Methods for Acquisition

- **Supervised Clinical Experience** with mentoring by faculty attendings and other health care providers in outpatient and inpatient settings about the utilization of partners, the importance of patient advocacy, cost-effective approaches to rheumatic disease patients, and the strengths and limitations of the local and external systems.
- **Didactic Sessions** including specific lectures and seminars to address various types of practice settings for Rheumatology, cost-effective rheumatologic practices, local and national patient resources and clinical conferences that highlight particular systems-based practice issues, including multidisciplinary conferences related to individual patients. Scheduled mentoring sessions may also be used identify systematic problems in patient care delivery and to generate potential short term and long term solutions; these might also result in fellow-driven QI projects.
- **Self Directed Learning** with reading assignments specifically related to systems-based practice issues.

Performance Markers

- **Partners** – The trainees are expected to demonstrate the ability to utilize multiple providers and resources as needed for optimal patient care.
 - A. Understand the rheumatologist's role as well as when to consult other health professionals (physiatrist, nurse practitioner, visiting nurse, physical therapist, occupational therapist, podiatrist, social worker, vocational rehabilitation counselor, psychologist, others) in the outpatient and inpatient rehabilitation of patients with rheumatic diseases.
 - B. Demonstrate the ability to educate patients about outside resources which might be of assistance to their physical, emotional and financial well being. Examples of these external resources include the Arthritis Foundation self help groups, Lupus Foundation support groups and pharmaceutical company-initiated financial aid programs.

- **Advocacy:** - Rheumatology trainees are expected to demonstrate the ability to act as effective advocates for their patients in a variety of needs, such as dealing with insurance companies and HMO's, for preauthorization for medications, filing disability claims, etc.
- **Cost effective care**
 - A. The trainees are expected to know the local costs of medications, they prescribe, rheumatologic lab tests they order and commonly used diagnostic tests and procedures.
 - B. Trainees must demonstrate a commitment to the practice of appropriate evidence-based cost-conscious patient care.
- **Systems:** Trainees are expected to:
 - A. Demonstrate knowledge about how different health care delivery systems affect the management of patients with rheumatic diseases.
 - B. Practice management: be familiar with types of practice, equipment, insurance, economics, personnel, ethical aspects, quality assurance, and managed care issues relating to the practice of rheumatology.
 - C. Identify the strengths and weakness of the system in which they are training and practicing. They should also demonstrate the ability to develop strategies to overcome systematic problems they have identified, and/or QI projects to improve it.
 - D. Be familiar with the history of rheumatology, American College of Rheumatology, Arthritis Foundation, and Association of Rheumatology Health Professionals.
 - E. Understand the influence on rheumatology of the American Medical Association, Food and Drug Administration, HCFA and other governmental agencies involved in health care legislation, peer review organization.

Evaluation Tools

These generic evaluation tools can be modified specifically to include assessment of the specific

performance markers of competence in systems-based practice.

- Global evaluation by faculty with regard to demonstration of effective systems-based performance markers.
An example would be an assessment of the trainee's performance in assembling and leading multidisciplinary health care teams in the management of inpatients (e.g. a complicated SLE patient) and outpatients (e.g. a severe rheumatoid arthritis patient). This might involve directing patient management with social work, physical and occupational therapists, rehabilitation medicine specialists, orthopedics, and/or geriatrics.
- Patient surveys with components that specifically address advocacy issues and cost effective health care delivery
- 360° evaluations
- Review of maintained portfolio documenting systems-based practice performance markers, including QI projects. Appropriate portfolio entries could include:
 - documentation of instances of leadership in the multidisciplinary management of complicated patients, of utilization of outside resources for patient care, of patient advocacy

- participation in a project to modify to the patient record-keeping (EMR, hard copy) system
- participation in a program to improve triage system in ER for patients with acute rheumatic disease
- developing an outpatient system that would allow patients with acute rheumatic complaints appointments with 24hrs.
- outpatient records survey for compliance with evidence-based diagnostic or therapeutic guidelines and development of strategies to correct deficiencies, e.g. laboratory monitoring of pts on DMARDs, PPD testing before TNF antagonists
Cognitive test for knowledge about SBP issues

8. Interpersonal and Communication Skills Definition: Skills that result in the effective information exchange and collaboration with patients, their families and other health professionals.

Essential Components

- **Creating and sustaining a therapeutic and ethically sound relationship with patients**
 - A. Understand and incorporate the patient's and patient's family perspective
 - B. Establish trust with patient and patient's family
- **Gathering and Providing Information**
Use effective questioning, explanatory, nonverbal and writing skills to elicit and provide information to patients, family and colleagues
- **Working effectively as a member or leader of a health care team or a professional group**

Methods of Acquisition

- Mentoring
- Experiential learning/Role-modeling
- Lectures/group discussions
- Case Scenarios

Performance Markers

- Obtains patient informed consent
- Write effective consultations, letters and referrals
- Clearly describes risks and benefits of therapeutic interventions and procedures
- Uses interpreters and allied health professionals appropriately
- Demonstrate the ability to effectively teach patients and colleagues
- Effectively interacts and communicates with colleagues and peers

Evaluation Methods

- Faculty global assessment
- Patient Surveys
- Patient Component of CEX
- Global assessment tool

9. PROFESSIONALISM: Definition: Professionalism is manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to patients of diverse backgrounds.

Essential Components

- **Primacy of patient interest**
- **Physician autonomy in making decisions for patients medical**
- **Physician accountability and responsibility to:**
 - A. Patients
 - B. Colleagues
 - C. Society
 - D. Self
- **Humanistic qualities and altruism** in order to serve patients with respect to their cultural, emotional and social needs
- **Ethic behavior** including being trustworthy and cognizant of conflicts of interest. Integrity as a physician and consultant rheumatologist pervades all of the components of professionalism.

Methods for Acquisition

Professionalism can be fostered throughout the fellowship training period beginning with an emphasis on the essential components of professionalism and the specific performance goals at the beginning of the fellowship.

- **Training environment** A culture of professionalism is created by mentors, role model clinicians, and a resident culture that demonstrate the values of professionalism and a spirit of collegiality in placing the needs of the patients first, maintaining a commitment to continuous quality improvement, and being responsive to society's healthcare needs. A commitment to professional ethics is demonstrated by establishing and maintaining a high standard of moral and ethic behavior within the clinical setting in the care of patients, in the education of residents, in conducting research, and in interacting with medical device and pharmaceutical companies and funding organizations.
- **Professional activities** Trainees should be given the opportunity to participate in community service, professional organizations, and institutional committee activities.
- **Supervised clinical experiences** with mentoring by faculty attendings provide experiential learning opportunities to observe and practice the key components of professionalism. Faculty can be encouraged to highlight pertinent professional issues with their fellows at the bedside, at weekly conferences, and in the outpatient clinic setting.
- **Didactic lectures** devoted to topics of professionalism. These might also include instructive case conferences using case scenarios to highlight professionalism and ethical issues.
- **Self Directed Learning** including reading assignments and/or journal club discussions of peer reviewed publications and specialty organization publications from the AMA, ABIM, ACP and ACGME and web-based discussions on professionalism.

Performance Markers

By the end of their training fellows should be able to demonstrate competency in the following areas:

- **Patient Primacy** Trainees are expected to demonstrate understanding of the importance of patient primacy by:
 - A. Placing the interest of the patient above their own interest
 - B. Providing autonomy to their patients to decide upon treatment once all treatment options and risks have been outlined for them
 - C. Providing and obtaining key elements of informed consent in an understandable manner for therapeutic interventions and clinical research endeavors.
 - D. Giving suitable care to all patients
 - E. Treating all patients with respect regardless of race, gender and socioeconomic background.
- **Physician accountability and responsibility** including :
 - A. Follows through on duties and clinical tasks
 - B. Demonstrates timeliness in required activities, in completing medical records and in responding to patient and colleague calls
 - C. Exhibits regular attendance and active participation in divisional and departmental training activities and scholarly endeavors
 - D. Strives for excellence in care and/or scholarly activities as a rheumatologist.
 - E. Works to maintain personal physical and emotional health and demonstrates an understanding of and ability to recognize physician impairment in self and colleagues.
- **Humanistic qualities and altruism**
 - A. Exhibits empathy and compassion in patient/physician interactions
 - B. Is sensitive to patients' needs for comfort and encouragement
 - C. Is courteous and respectful in interactions with patients, staff, and colleagues
 - D. Maintains the welfare of their patients as their primary professional concern
- **Ethical behavior** including being trustworthy and cognizant of conflicts of interest. Integrity as a physician and consultant rheumatologist pervades all of the components of professionalism.
 - A. Demonstrates integrity in reporting back key clinical findings to supervising physicians
 - B. Is trustworthy in following through on clinical questions, laboratory results, and other patient care responsibilities.
 - C. Recognizes and addresses actual and potential conflicts of interests including pharmaceutical industry involvement in their medical education and program funding and guarding against this influencing their current and future prescribing habits
 - D. Follows the military rules and regulation of courtesy, appearance, ethics, etc.

Evaluation Tools

- Anonymous 360° global assessment by patients, peers, faculty, allied health professional and clinical support staff. Fellows could also fill out self-evaluations in the sphere of professionalism and compare it to responses from others for self-improvement.
- Portfolios should include a section to include reflective entries on issues of professionalism such as difficult patient and peer encounters, conflicts of interest, and barriers to providing equitable care.
- Global evaluation by faculty with regard to demonstration of professional behavior.
- Follow military code of ethics

10. RESPONSIBILITIES BY YEAR LEVEL: During the first year, fellows will participate in all scheduled conferences as listed in paragraph 8a below; this will include presenting case histories, literature reviews, and journal club article reviews for selected conferences. Under supervision of a teaching attending, first year fellows are the primary physicians for patients in two half-day Rheumatology continuity clinics per week and one half-day acute care clinic, except during their outside rotations when there is two half-day continuity clinics per week. Each one-half day clinic will be comprised of 2-3 new patients, 3-5 follow-up patients. The Education Committee monitors fellow progress in the outpatient clinic; after a majority vote of the committee the first year fellow is allowed to determine whether follow-up patients must be staffed before or after the patient leaves the clinic. For the duration of the fellowship, new patients are always seen by the staff provider before the patient leaves the clinic.

For six months of the first year, fellows assume a gradually increasing amount of responsibility for supervising residents in the care of ward patients on the inpatient consult service, so that by the end of the first year, they are close to being capable of running a consultation service independently. The fellow evaluates all patients on the consult service: residents when rotating on the service will present patients to the fellow prior to attending rounds and the fellow will corroborate important historical and physical findings. When rotating on other subspecialty services, fellows will assume responsibility for patient care and procedures as deemed appropriate by the supervising staff. First year fellows are provided time for an extensive amount of text and current literature self education. This education is reinforced by their responsibilities in the teaching of residents on the wards and at morning report.

For one of the first two 4-week blocks of the academic year, the senior fellow takes control of the consultation service, with the expectation that the fellow will present patients to the staff with a comprehensive assessment, plan, and literature research requiring minimal input from the staff. The senior fellow will also select appropriate inpatients for the new first year fellow who is rotating on the Introduction to Rheumatology Rotation to see. The junior fellow will then evaluate the patient, present it to the senior fellow, who will then perform teaching and in turn present the case to the responsible attending.

Second year fellows continue to assume responsibility for patients in their outpatient clinics 2 half day continuity clinics per week, working under teaching staff supervision toward the eventual goal of independence in patient care. Second year fellows are expected to require increasingly fewer staff visits to follow-up patients. New patients are always seen by the staff, but for second year fellows the expectation is that the fellow will progress toward a comprehensive plan that by the end of the year requires little or no input from the staff member. Second year fellows may supervise residents in clinic; in this case the attending listens to the resident present the case to the fellow who then assumed the role of teacher and attending. The second year fellow will collaborate with his or her mentor of choice to design, implement, and write up for publication at least one clinical or basic science research project. Second year fellows continue to be responsible for conferences and continuing self education as above. By the end of second year, fellow will have 4-8 weeks of inpatient consult service.

Duty Hours: As directed by the ACGME, fellows must 1) have an average of one 24-hour period free of hospital duties per week, 2) not exceed 80 hrs of in-house duties/week and 3) have a minimum 10 hour time rest period provided between all daily duties.

Rheumatology fellows do not take in-house calls. On average rheumatology fellows work 50 hours/week, never exceed 80 hours of service/week and must have one 24 hr period per 7 day work week free of all hospital duties and call when averaged over a 4 week rotation.

If we have two first year fellows: The off service fellow will cover every other weekend during the first year of training.

If we have one first year fellows and during the 1-2 months of in-patient rotation for second year fellows: The inpatient staff will cover to allow fellows to take on average one 24 hour period off hospital duties/week. The fellows must report to PD, GMEC or ACGME any violation in these guidelines. It is not an option for the fellow to volunteer to violate this policy.

Lines of responsibility:

The attending assume ultimate responsibility for the quality of care of all patients. The fellow, under supervision of the attending, is responsible for complete care of all inpatients and outpatients with whom the fellow has contact in the course of the inpatient rotations or outpatient clinics. The fellow supervises and teaches internal medicine residents and medical students who rotate on the inpatient service. Senior fellows on the inpatient service will supervise junior fellows rotating on the Introduction to Rheumatology Rotation. Attending must co-sign all written documentation of patient encounters and must personally visit all new patients to the clinic for all fellows as well as return patient visits for first year fellows until a majority vote of the committee the first year fellow allows the fellow to determine whether follow-up patients must be staffed before or after the patient leaves the clinic.

11. PROGRAM DIRECTOR AND TRAINING STAFF: The program director is Dr. Jay B. Higgs, MD, Col (ret) (board certified in internal medicine and Rheumatology, Associate Professor of Medicine, USUHS and Clinical Associate Professor of Medicine, UTHSCSA). Full time key clinical faculty include Dr Ramon Arroyo, Col(ret), (board certified in internal medicine and rheumatology, Associate Professor of Medicine, USUHS and Associate Professor of Medicine, UTHSCSA), Dr. Daniel Battafarano Col(ret), (board certified in internal medicine and rheumatology, Associate Professor of Medicine, USUHS and Associate Professor of Medicine.) Other full time faculty include Major Hang Nguyen, and part time faculty are Lt Col's Juan Garza and Fernando Silva at Wilford Hall Medical Center.

Part time teaching staff includes: Lt Col Fernando Silva, staff rheumatologist, Wilford Hall Medical Center.

Consultative teaching staff: Col Liem Mansfield (Chief of Bone Radiology), Lt Col Tad L. Gerlinger (Program Director, Orthopaedic Surgery Residency), Lt Col Howard Gill (Chief of Physical Medicine and Rehabilitation), Lt Col Norman Gill (Program Director, Physical Therapy),

Active consultant staff at the University of Texas Health Science Center at San Antonio include Dr. Michael Fishbach, MD (Associate Professor of Medicine, Division of Clinical Immunology and Director of the Rheumatology training program), Dr. I. Jon Russell, MD (Associate Professor of Medicine, Division of Clinical Immunology), Dr. Augustine Escalante (Associate professor of medicine and rheumatology).

12. FACILITIES AND RESOURCES:

a. This program is centered at The San Antonio Uniformed Services Health Education Consortium, comprised mainly of Wilford Hall Medical Center and Brooke Army Medical Center, now the South and North Campuses of the San Antonio Military Medical Command (SAMMC). SAMMC is located in the San Antonio metropolitan area with three other Air Force facilities (Brooks AFB, Kelly AFB and Randolph AFB). This concentration of military facilities in a city of nearly one million results in a large population of active duty, retired, and dependent personnel which form the primary care and referral basis SAUSHEC trainees. The Rheumatology clinics at WHMC and BAMC log approximately 600 outpatient encounters monthly of which 45 are new consultations. Inpatient consultations average 12 per month, and there are approximately 2 patients being followed daily on the inpatient consultation services at each institution.

b. The rheumatology teaching program makes use of the full capabilities in joint replacement surgery, physical therapy, occupational therapy, rehabilitative medicine, pediatrics, neurology nuclear medicine, and bone radiology which are available at WHMC, BAMC, and the local referral area.

c. Research facilities include a Clinical Research Facility equipped with research laboratories and a full range of administrative support for clinical research. The Immunopathology Laboratory of the Departments of Medicine and Pathology performs tissue typing, flow cytometry, and serologic determinations necessary for contemporary rheumatology. In addition to the facilities available at WHMC, the Rheumatology Department at the University of Texas Health Science Center has wide capabilities and a number of ongoing projects in various areas of basic and clinical research in rheumatology.

13. RESEARCH: The reader is referred to the attached curriculum vitae for research capabilities, interests, and publications of the rheumatology teaching staff and fellows.

14. SPECIAL ACTIVITIES AND ELECTIVES:

a. Conferences:

Bone radiology	weekly
Combined radiology/rheumatology	monthly
Rheum/Nephrology	as needed, case based
Rheum/PT	4X/yr
Rheum/OT	TBD
Rheum grand rounds/path review	weekly
Rheumatology Review Series	2x/week
Journal club	monthly
WHMC/UTSA combined conference	monthly
Rheumatology core curriculum for IM	6-8X yearly
Rheumatology research conference	monthly

Department of Medicine Grand Rounds weekly
(fellows must attend a minimum of 60%, if available)

Rheum fellow lectures to AM report for IM quarterly

b. Meetings: Except when rotating on the inpatient service, fellows at both the first and second year levels will attend the annual meeting of the American College of Rheumatology, or a regional Rheumatology meeting (Central, Southeastern, Western, or Texas Rheumatism Association), and the Society of Air Force Physicians. The latter two are contingent on presentation of a scientific abstract at those meetings and availability of funding. The fellows must be present at the monthly staff meeting. All fellows attend the open session of the quarterly rheumatology education committee meeting, and the annual program review. Fellows need 60% attendance to housestaff council.

15. ASSESSMENT PROCEDURES: Fellows on clinical service will receive goals and objective before starting each rotation/elective. Monthly feedback, both verbally and in written form (new innovations) is provided at the end of each clinical rotation. They will receive quarterly feedback, both verbally and written for research rotations, and outpatient clinics. Nurses, technicians and program coordinator will evaluate them twice annually as part of 360-degree evaluation format. Fellows will receive a mini CEX examination twice a year and the in training exam provided by ACR (RSAP) during the first quarter of their second year. All attendings will assess communication skills, use of information technology, research effort, educational value, and application of knowledge of study design and statistical method of clinical studies for oral presentations during J club, Friday rheumatology rounds and at UT presentations. In addition, fellows must keep a procedure log and portfolio. Fellows' progress will be reviewed quarterly at the Rheumatology Education Committee meeting, and each attending will be present to give the fellow feedback on clinical performance. Each trainee will discuss his progress toward the goals of the fellowship quarterly with the program director. Written evaluation of each fellow will be provided yearly in the form of an annual training report. Fellows provide written feedback on the program and staff twice a year during the fellowship and once as a "field evaluation" six months after departure from the fellowship. The following table summarizes the required skills, objective, teaching method, evaluation method and feedback used to evaluate fellows according to the set of core competencies established by ACGME/RRC.

Key for evaluation methods:

FE - Faculty evaluation – completed at end of each month rotation

360 – 360 evaluation by support staff completed 2X/yr

P – Portfolio – to be presented by each fellow to Training Program Director q 6m

WE – Written examination (to be completed after each review series) RSAP (once during 2 year training) Board results

CEX: CEX 2x/ each year of training

OP – oral presentation

PL – Procedure log

Teaching method

DO – direct observation

DMARD – Disease Modifying Antirheumatic Drug Clinic

Competency	Required skills	Specific objectives	Teaching Method	Evaluation Method	Fellows Feedback	Program Improvement
1. Patient care	Communicates effectively and demonstrate caring & respectful behavior to patients and their families	Demonstrates skills and attitudes that contribute to successful interactions with patients and their families	1. Curriculum 2. Inpatient care 3. Continuity clinic 4. Cross cover clinic 5. DMARD clinic	FA, 360, CEX, WE	Daily in clinic. Monthly by rotations Biannually by PD Mid-rotation verbal feedback	
	Gather essential and accurate information about patients	Conducts a well organized medical history and physical exam	1. Didactics 2. Curriculum 3. Inpatient care 4. Continuity clinic 5. Cross cover clinic 6. DMARD clinic	FE, record review, CEX, WE	Same	
	Use of available information technology to support workup, diagnosis and plans	Demonstrates the ability to find relevant information	1. Didactics 2. UT/WHMC case presentation 3. Inpatient care 4. Outpatient care 5. Rheum rounds 6. DMARD Doc	FE, evaluations, P, WE	Same	
	Makes informed decisions about diagnostic & therapeutic interventions	Apply appropriate information to decision making	1. Didactics 2. Case presentations 3. Inpatient care 4. Out patient care 5. Rehum rounds 6. DMARD Doc	FE, CEX, 360, WE	Same	

<u>Competency</u>	<u>Required skills</u>	<u>Specific objectives</u>	<u>Teaching Method</u>	<u>Evaluation Method</u>	<u>Fellows Feedback</u>	<u>Program Improvement</u>
1. Patient care (Continued)	Develop and carries out patient management plans	Recognize disease process and appropriately manage, treats and follow-up	1. Didactics 2. Case presentations 3. Inpatient care 4. Outpatient care 5. DMARD Doc 6. Rheum rounds	FE, CEX, 360, WE,	Same	
	Demonstrate competence in performance and interpretation of rheumatologic procedures	1. Performance of a minimum 50 joint aspiration/injection and soft tissue injections. 2. Synovial fluid evaluation including polarized microscopy. 3. Interpretation of DEXA, EMG/NCV, HLA, immunological, molecular serological tests and pathological specimens	1. Didactic 2. Inpatient procedures 3. Outpatient clinic procedure 4. Use of polarized microscope 6. PM & R rotation 7. Lab rotation 8. Rheum rounds	Procedure log, FE, WE,	Same	
	Demonstrates proper use of ancillary services and other disciplines to provide patient-focused service	Proper use of ancillary services (PT, OT, Orthotics lab, clinical lab, radiology, DMARD clinic)	1. Off service rotations 2. Radiology conference 3. In and out patient consult service 4. Didactics	FE, 360, WE	Same	

<u>Competency</u>	<u>Requires skills</u>	<u>Specific objectives</u>	<u>Teaching method</u>	<u>Evaluation Method</u>	<u>Feedback</u>	<u>Program improvement</u>
2. Medical knowledge	Demonstrates an investigatory and analytical approach to clinical situations	Creates appropriate differential diagnosis	1.Rheum review series 2.research meeting 3.Pediatric rheumatology clinic 4.Off-service rotations 5.In and out patient consult service 6. J Club 7. UT conference 8. Rheum rounds	FE, CEX,	Same	
	Knowledge of basic science and its clinical and research applications	Utilizes up to date scientific knowledge decision making	1.Rheum review series 2.J club, research meeting 3.Clinics 4.Inpatient 5.DMARD 6.Conferences 7.Research project 8.Rheum rounds 9.Roatations	FE, DO, WE, RSAP	Same	

<u>Competency</u>	<u>Required skills</u>	<u>Specific objectives</u>	<u>Teaching Methods</u>	<u>Evaluation Methods</u>	<u>Feedback</u>	<u>Program Improvement</u>
3. Practice-based learning improvement	Use information technology to manage information, access on-line medical information and support their own education	1.Be able to manage information 2.Use on-line information 3.Ability to use a variety of academic resources	1.Didactics 2.Rheum review 3.Rheum rounds 4.Reserch project 5. DO 6.J Club 7.Case presentations	FE, P	Same	
	Residents are able to apply knowledge of study design and statistical to the appraisal of clinical studies and their research projects	1.Be able to participate in monthly journal club with critical discussion of study designs and statistical methods of presented articles 2.Be able participate in clinical research and apply this knowledge on their research projects	1.Research meeting 2.Research project 3.J club 4.Faculty mentoring 5.Clinical research course	FE, P	Same	
	Evaluate own practice	Use global information to for self-improvement and self-evaluation	1.Computer use 2.Reflective learning	FE, P	Same	
	Facilitate learning of students and health care providers	1.Teach clinical rheumatology to medical students, residents, fellows, staff and other ancillary personnel 2.demonstrate effective teaching (goals, objectives) 3.Gain experience in teaching	1. IM morning report rheum minute 2.Core curriculum lecture series for peds, IM and other departments 3.Preceptorship 4.Teaching rounds (rheum rounds) 5.DO	FE, 360, P	Same	

<u>Competency</u>	<u>Required skills</u>	<u>Specific objectives</u>	<u>Teaching Methods</u>	<u>Evaluation Methods</u>	<u>Feedback</u>	<u>Program improvement</u>
4. Interpersonal and communication skills	Creates and sustained a therapeutically and ethically sound relationship with patients, members of health care team and other professionals groups	<ol style="list-style-type: none"> 1. Be cognizant of patients characteristics that may affect physician/patient relations 2. Contribute positively to health care team 	<ol style="list-style-type: none"> 1. Didactics 2. Observation 3. Ethic lecture 	FE, 360,	Same	
	Use effective listening, questioning oral and writing skills	<ol style="list-style-type: none"> 1. Ask patients for level of understanding 2. Provides adequate answers 3. Oral consultative skills 4. Conference skills 5. Teaching skills 6. Demonstrates effective written communication skills in clinical notes and research presentation (publications) 	<ol style="list-style-type: none"> 1. Didactics 2. DO 3. Mentoring 4. Review of clinic and inpatient notes 5. Lectures 	FE, presentation, publications, 360	Same	

<u>Competency</u>	<u>Required skills</u>	<u>Specific Objectives</u>	<u>Teaching Method</u>	<u>Evaluation Method</u>	<u>Feedback</u>	<u>Program Improvement</u>
5. Professionalism	Demonstrate commitment to carrying out professional responsibilities and adherence to ethical principles	1. Showing respect, compassion, and integrity during performance of clinical examination 2. Responsiveness and accountability to patients, their families and other health professionals 3. Demonstrate commitment to excellence and ongoing professional development (independent reading, designing and completing at least one research project) 4. Attendance to academic activities	1. Modeling 2. Didactic 3. Research 4. Off service rotations 5. Mentor	FE, 360, P	Same	
	Demonstrates to the patients a respectful and altruistic attitude	Foster environment of respect, compassion and integrity	Didactics DO	FE, 360	Same	
	Sensitive to cultural, age, gender and disability issues	Recognize and integrate individual needs in treatment plans	Pt sensitivity lecture DO	FE, 360	Same	
	Availability	1. Response to paging system 2. Present for required conference (60% medicine grand rounds) 3. Timely response to patient needs and assigned rheum review assignments	Role model DO	FE, 360	Same	

<u>Competency</u>	<u>Required skills</u>	<u>Specific Objectives</u>	<u>Teaching Method</u>	<u>Evaluation Method</u>	<u>Feedback</u>	<u>Program Improvement</u>
6. Systems-Based Practice	Able to demonstrate awareness, responsiveness and effective use of system resources	1. Understanding of health care organization 2. Knowing the difference between various medical practices 3. Knowledge of health care cost, allocations, and budget 4. Understanding role of health care managers and health care providers	1. Didactics 2. Staff meeting 3. House staff council 4. DO 5. Use of CHCS, ICBID, virtual library and up to date on line	FE, P	Same	

16. ADDITIONAL INFORMATION:

a. Curriculum Vitae

b. Fellows will be allowed a maximum of four weeks leave (20 working days) per year of fellowship. This leave must be approved by the program director, otherwise policy regarding consecutive days or weeks granted is determined by the director of medical education.

c. Per ACGME recommendations, fellows will sign the "Rheumatology Fellow Agreement" attached.

Program Director
Fellowship in Rheumatology
SAUSHEC

1. I understand my responsibilities as a fellow in Rheumatology are to:

- Develop a personal program of self-study and professional growth with guidance from the teaching staff.
- Participate in safe, effective and compassionate patient care under supervision commensurate with my level of advancement and responsibility.
- Participate fully in the educational activities of this program and, as required, assume responsibility for teaching and supervising residents and students.
- Participate in institutional programs and activities involving the medical staff and adhere to established practices, procedures, and policies of the institutions.
- Participate in institutional committees and councils; especially those that relate to patient care review activities.
- Apply cost containment measures in the provision of patient care.
- Discharge my duties as an officer in the United States Air Force per my oath of office and all standard regulations of the Air Force and Department of Defense.

2. I understand my benefits, including financial support, vacation, sick leave, liability coverage, medical insurance are all standard active duty benefits as outlined in other Air Force documents.

3. The term of this fellowship is 24 months.

4. No professional medical activities ("moonlighting") are allowed outside the training program.

5. Call is taken from home as first call for Rheumatology during the inpatient ward service block rotations (6-7 block/yr for first year fellows and 1- 2 blocks for second year fellows) with an average of one day off in seven. I agree not to voluntarily violate this requirement, and if I am involuntarily required to violate it, I will immediately report this to my program director, my liaison officer, or the SAUSHEC office of Graduate Medical Education.

6. My right to Due Process is covered by the Uniformed Code of Military Justice and in the regulation AFI 41-117.

7. I have received a copy of the Rheumatology Curriculum, which includes the learning objectives, and a statement of lines of responsibility in patient care.

8. I have received a copy of the GME Policy Book available from the Office of Graduate Medical Education at this institution.

Signature:

Date:
